Amendments to the Specification

Please replace paragraphs [0006]-[0010] with amended paragraphs [0006]-[0010]:

[0006] **Figure 1.** BFA4 cDNA sequence (SEQ ID NO.:1).

[0007] **Figure 2.** BFA4 amino acid sequence (SEQ ID NO.:2).

[0008] **Figure 3.** BCY1 nucleotide (A; SEQ ID NO.:3) and amino acid (B; SEQ ID NO.:4) sequences.

[0009] **Figure 4.** BFA5 cDNA sequence (SEQ ID NO.:5).

[0010] **Figure 5.** BFA5 amino acid sequence (SEQ ID NO.:6).

Please replace paragraph [0039] with amended paragraph [0039]:

[0039] A fusion motif may enhance transport of an immunogenic target to an MHC processing compartment, such as the endoplasmic reticulum. These sequences, referred to as tranduction or transcytosis sequences, include sequences derived from HIV tat (see Kim et al. 1997 J. Immunol. 159:1666), *Drosophila* antennapedia (see Schutze-Redelmeier et al. 1996 J. Immunol. 157:650), or human period-1 protein (hPER1; in particular, SRRHHCRSKAKRSRHH (SEQ ID NO: 105)).

Please replace paragraph [0082] with amended paragraph [0082]:

[0082] A library of 100 peptides from the BFA5/NYBR-1 coding sequence that are predicted to be medium to high binders to HLA-A*0201 were designed using Rammensee and Parker algorithms. The library was sub-divided into 10 pools of ten peptides (**Table III**), and each pool was used to activate 10 different T cell cultures after pulsing peptides on to mature autologous dendritic cells. Two experiments were performed with the library of BFA5/NYBR-1 peptides demonstrating immunoreactivity in HLA-A*0201 human T cells, as described below.

TABLE III

BFA5 Peptide Pools

Peptide Group	CLP number	Sequence	SEQ ID	Peptide Group	CLP number	Sequence	SEQ ID
BFA5 Group 1	2983	LMDMQTFKA	7	BFA5 Group 6	3033	FESSAKIQV	53
	2984	KVSIPTKAL	8		3034	GVTAEHYAV	54
	2985	SIPTKALEL	9		3035	RVTSNKTKV	55
	2986	LELKNEQTL	10		3036	TVSQKDVCV	56
	2987	TVSQKDVCL	11		3037	KSQEPAFHI	57
	2988	SVPNKALEL	12		3038	KVLIAENTM	58
	2989	CETVSQKDV	13		3039	MLKLEIATL	59
	2990	KINGKLEES	14		3040	EILSVVAKL	60
	2991	SLVEKTPDE	15		3041	MLKKEIAML	61
	2992	SLCETVSQK	16		3042	LLKEKNEEI	62
BFA5 Group 2	2993	EIDKINGKL	17	BFA5 Group 7	3043	ALRIQDIEL	63
	2994	MLLQQNVDV	18		3044	KIREELGRI	64
	2995	NMWLQQQLV	19		3045	TLKLKEESL	65
	2996	FLVDRKCQL	20		3046	ILNEKIREE	66
	2997	YLLHENCML	21		3047	VLKKKLSEA	67
	2998	SLFESSAKI	22		3048	GTSDKIQCL	68
	2999	KITIDIHFL	23		3049	GADINLVDV	69
	3000	QLQSKNMWL	24		3050	ELCSVRLTL	70
	3001	SLDQKLFQL	25		3051	SVESNLNQV	71
	3002	FLLIKNANA	26		3052	SLKINLNYA	72

Peptide Group	CLP number	Sequence	SEQ ID	Peptide Group	CLP number	Sequence	SEQ ID
BFA5 Group 3	3003	KILDTVHSC	27	BFA5 Group 8	3053	KTPDEAASL	73
	3004	SLSKILDTV	28		3054	ATCGMKVSI	74
	3005	ILIDSGADI	29		3055	LSHGAVIEV	75
	3006	KVMEINREV	30		3056	EIAMLKLEI	76
	3007	KLLSHGAVI	31		3057	AELQMTLKL	77
	3009	AVYSEILSV	32		3058	VFAADICGV	78
	3010	KMNVDVSST	33		3060	PAIEMQNSV	79
	3011	ILSVVAKLL	34		3061	EIFNYNNHL	80
	3012	VLIAENTML	35		3062	ILKEKNAEL	81
BFA5 Group 4	3013	KLSKNHQNT	36	BFA5 Group 9	3063	QLVHAHKKA	82
	3014	SLTPLLLSI	37		3065	NIQDAQKRT	83
	3015	SQYSGQLKV	38		3066	NLVDVYGNM	84
	3016	KELEVKQQL	39		3067	KCTALMLAV	85
	3017	QIMEYIRKL	40		3068	KIQCLEKAT	86
	3018	AMLKLEIAT	41		3069	KIAWEKKET	87
	3019	VLHQPLSEA	42		3070	IAWEKKEDT	88
	3020	GLLKATCGM	43		3071	VGMLLQQNV	89
	3021	GLLKANCGM	44		3072	VKTGCVARV	90
	3022	QQLEQALRI	45	BFA5 Group 10	3074	ALHYAVYSE	91
BFA5 Group 5	3023	CMLKKEIAM	46				
	3024	EQMKKKFCV	47		3075	QMKKKFCVL	92
	3025	IQDIELKSV	48		3076	ALQCHQEAC	93
	3026	SVPNKAFEL	49		3077	SEQIVEFLL	94
	3027	SIYQKVMEI	50		3078	AVIEVHNKA	95
	3028	NLNYAGDAL	51		3079	AVTCGFHHI	96
	3029	AVQDHDQIV	52		3080	ACLQRKMNV	97
					3081	SLVEGTSDK	98

ELISPOT analysis was performed on human T-cell cultures activated through four rounds of stimulation with each pool of BFA5 peptides. Reactivity against a CMV pp65 peptide and a Flu matrix peptide were used as positive controls for T-cell activation in the experiments. Each experiment was performed with PBMC and dendritic cells from a single HLA-A*0201^{+} donor designated as "AP10". The results show that, although BFA4 is markedly reactive with high ELISPOT counts per 100,000 cells in the assay, BFA5 is even more reactive with 9/10 pools demonstrating ELISPOT reactivity. Similar results were obtained for both BFA4 and BFA5/NYBR-1 with a different HLA-A*0201. The bars reach a maximum at 600 spots because beyond that the ELISPOT reader does not give accurate counts. Cultures having a reading of 600 spots have more than this number of spots.

Please replace paragraph [0084] with amended paragraph [0084]:

[0084] In addition to ELISPOT analysis, human T cells activated by BFA5 peptides were assayed to determine their ability to function as CTL. The cells were activated using peptide-pulsed dendritic cells followed by CD40 ligand-activated B cells (5 rounds of stimulation). The experiment shown was performed with isolated PBMC from HLA-A*0201^{+} donor AP31. Isolated T cells were tested in ^{51}Cr-release assays using peptide-loaded T2 cells. The % specific lysis at a 10:1, 5:1, and 1:1 T-cell to target ratio is shown for T2 cells pulsed with either pools of BFA5/NYBR-1 peptides or with individual peptides. The graph shows CTL activity induced against targets loaded with a c non-specific HLA-A*0201-binding HIV peptide (control) followed by the CTL activity against the peptide pool (Pool 1 etc.) and then the activity induced by individual peptides from the respective pool to the right. A high level of cytotoxicity was observed for some peptides at a 1:1 E:T ratio. CTL activity (percent specific lysis) induced by the control HIV peptide was generally <10%. Similar results were obtained with another PBMC donor expressing HLA-A*0201 (AP10). A large number of BFA5 peptides trigger T cell-mediated cytotoxicity of BFA5 peptide-loaded target cells. **Table IV** lists those peptides having immunogenic properties. Five peptides (LMDMQTFKA (SEQ ID NO.:7), ILIDSGADI (SEQ ID NO.:29), ILSVVAKLL (SEQ ID NO.:34), SQYSGQLKV

(SEQ ID NO.:38), and ELCSVRLTL (SEQ ID NO.:70)) were found to induce both IFN-γ secretion and CTL activity in T cells from both donors.

TABLE IV

Immunoreactive peptides from BFA5

	BFA5 peptides eliciting high IFN-γ release (>200 spots/100,000 cells)		BFA5 peptides inducing CTL lysis of pulsed cells	
SEQ ID NO.	Donor AP10	Donor AP31	Donor AP10	Donor AP31
7	LMDMQTFKA	LMDMQTFKA	LMDMQTFKA	LMDMQTFKA
8	KVSIPTKAL			KVSIPTKAL
9	SIPTKALEL			SIPTKALEL
11	TVSQKDVCL			
12	SVPNKALEL			
21	YLLHENCML	YLLHENCML	YLLHENCML	
24	QLQSKNMWL	QLQSKNMWL		QLQSKNMWL
28	SLSKILDTV	SLSKILDTV		SLSKILDTV
29	ILIDSGADI	ILIDSGADI	ILIDSGADI	ILIDSGADI
30	KVMEINREV			
32	AVYSEILSV			
34	ILSVVAKLL	ILSVVAKLL	ILSVVAKLL	ILSVVAKLL
37	SLTPLLLSI	SLTPLLLSI		SLTPLLLSI
38	SQYSGQLKV	SQYSGQLKV	SQYSGQLKV	SQYSGQLKV
40	QIMEYIRKL	QIMEYIRKL		QIMEYIRKL
49	SVPNKAFEL			
51	NLNYAGDAL	NLNYAGDAL		
54		GVTAEHYAV		
57		KSQEPAFHI		
59	MLKLEIATL	MLKLEIATL		MLKLEIATL
61		MLKKEIAML		
63	ALRIQDIEL			
67		VLKKKLSEA		
70	ELCSVRLTL	ELCSVRLTL	ELCSVRLTL	ELCSVRLTL
72	SLKINLNYA	SLKINLNYA		SLKINLNYA
74	ATCGMKVSI		ATCGMKVSI	
77	AELQMTLKL		AELQMTLKL	AELQMTLKL
78		VFAADICGV		
81	ILKEKNAEL	ILKEKNAEL		
84	NLVDVYGNM		NLVDVYGNM	
85	KCTALMLAV			

Please replace paragraph [0085] with amended paragraph [0085]:

[0085] Polyclonal antisera were generated against the following series of 22- to 23- mer peptides of BFA5:

BFA5(1-23) KLH-MTKRKKTINLNIQDAQKRTALHW (CLP-2977; SEQ ID NO:99)
BFA5(312-334) KLH-TSEKFTWPAKGRPRKIAWEKKED (CLP-2978; SEQ ID NO:100)
BFA5(612-634) KLH-DEILPSESKQKDYEENSWDTESL (CLP-2979; SEQ ID NO: 101)
BFA5(972-994) KLH-RLTLNQEEEKRRNADILNEKIRE (CLP-2980; SEQ ID NO: 102)
BFA5(1117-1139) KLH-AENTMLTSKLKEKQDKEILEAEI (CLP-2981; SEQ ID NO: 103)
BFA5(1319-1341) KLH-NYNNHLKNRIYQYEKEKAETENS (CLP-2982; SEQ ID NO: 104)